FIG. 1A

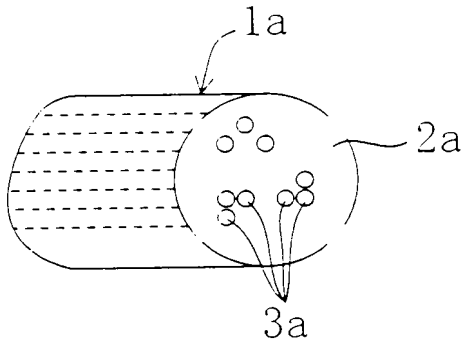


FIG. 1B

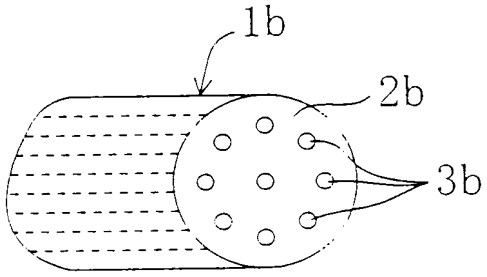


FIG. 2

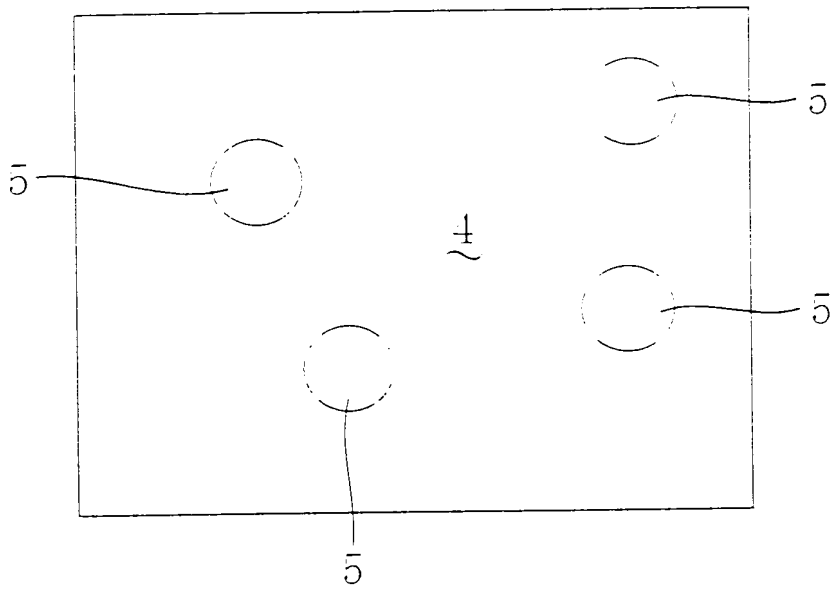


FIG. 3

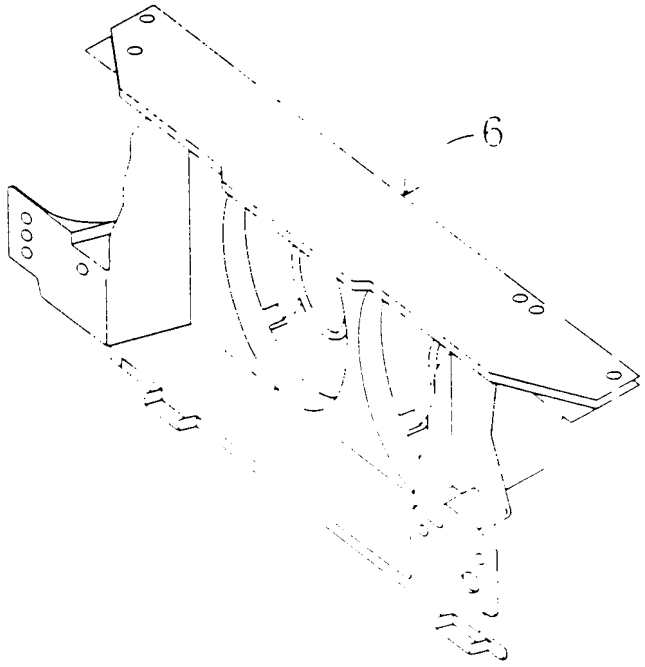


FIG. 4

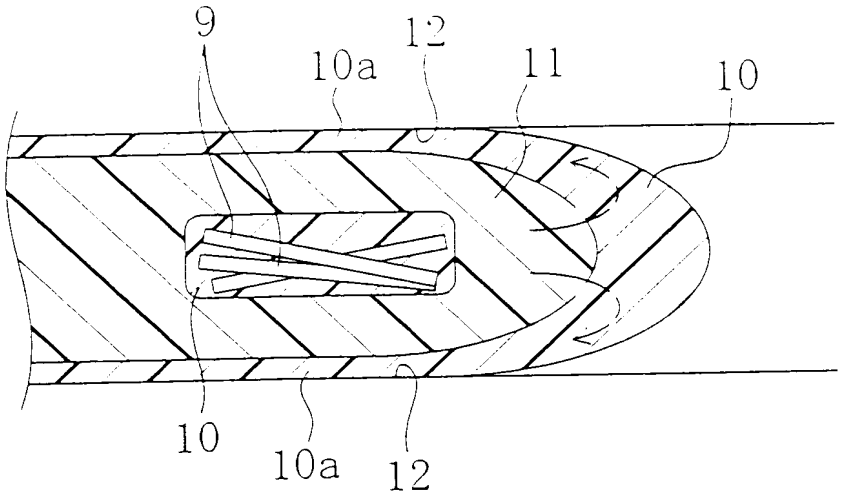

9
12
10a
11
10
10
10a
12

FIG. 5

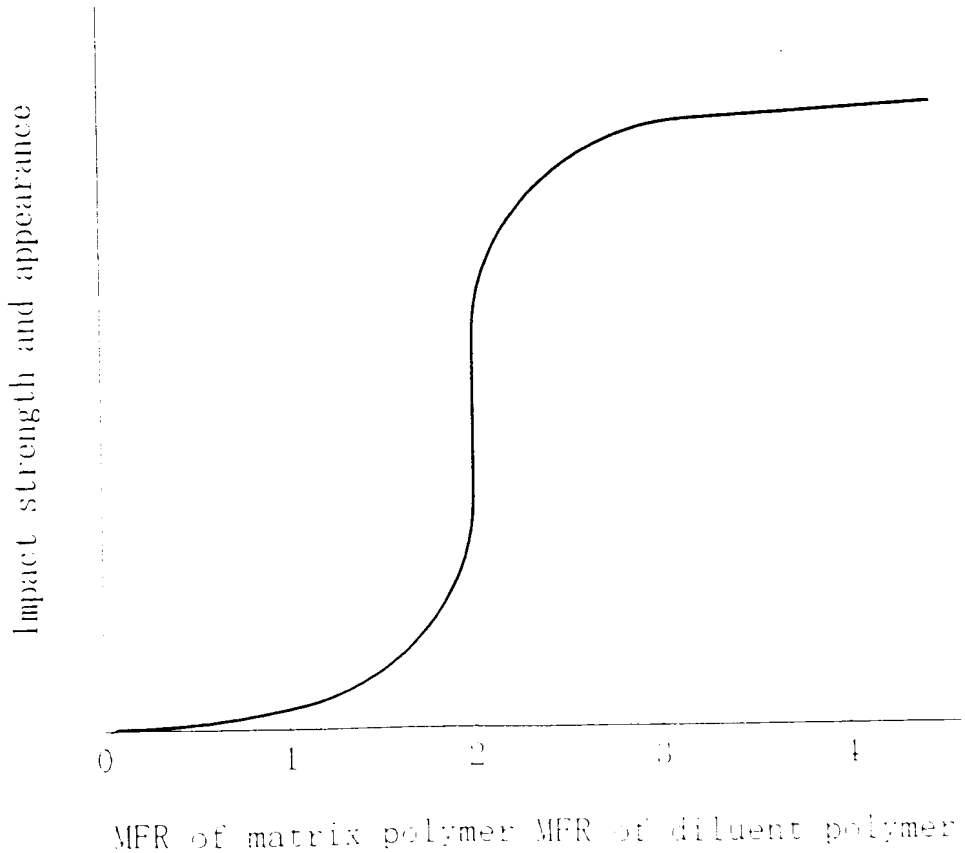

Impact strength and appearance
0
1
2
3
4
MFR of matrix polymer MFR of diluent polymer

FIG. 6

	Polypropylene homopolymer or ethylene-propylene block copolymer				Affinity providing component		Long glass fiber filler	Diluent polymer		
	Pentad isotactic index (%)	MFR (g/10min)	Weight average molecular weight (Mw)	Mixing amount (%)	Acid type for polypropylene modification	Mixing amount (%)	Mixing amount of long glass fiber filler (%)	Type of diluent polymer	Pentad isotactic index (%)	Mixing amount per 100 parts by mass of masterbatch
Ex.1	98	120	101200	47	Acrylic acid	5	48	EP copolymer	95	20
Ex.2	95	120	106500	47	Acrylic acid	5	48	EP copolymer	95	20
Ex.3	94.5	120	112000	47	Acrylic acid	5	48	EP copolymer	95	20
Ex.4	92	120	119000	47	Acrylic acid	5	48	EP copolymer	95	20
Ex.5	98	60	171000	50	Acrylic acid	10	40	/	/	
Ex.6	98	80	150100	50	Acrylic acid	10	40	/	/	
Ex.7	98	100	120000	50	Acrylic acid	10	40	/	/	
Ex.8	98	120	101200	50	Acrylic acid	10	40	/	/	
Ex.9	98	150	93400	50	Acrylic acid	10	40	/	/	
Ex.10	98	300	70100	50	Acrylic acid	10	40	/	/	
Ex.11	98	400	65100	50	Acrylic acid	10	40	/	/	
Ex.12	94.5	60	184000	50	Acrylic acid	10	40	/	/	
Ex.13	94.5	80	159000	50	Acrylic acid	10	40	/	/	
Ex.14	94.5	100	136000	50	Acrylic acid	10	40	/	/	
Ex.15	94.5	120	126200	50	Acrylic acid	10	40	/	/	
Ex.16	94.5	150	110400	50	Acrylic acid	10	40	/	/	
Ex.17	94.5	300	70100	50	Acrylic acid	10	40	/	/	
Ex.18	94.5	400	65100	50	Acrylic acid	10	40	/	/	
Ex.19	98	120	101200	52	/	/	48	EP copolymer	95	20
Ex.20	98	120	101200	45	Maleic anhydride	7	48	EP copolymer	95	20
Ex.21	98	120	101200	42	Acrylic acid	10	48	EP copolymer	95	20

FIG. 7

	Polypropylene homopolymer or ethylene-propylene block copolymer				Affinity providing component		Long glass fiber filler	Diluent polymer		
	Pentad isotactic index (%)	MFR (g/10min)	Weight average molecular weight (Mw)	Mixing amount (%)	Acid type for polypropylene modification	Mixing amount (%)	Mixing amount of long glass fiber filler (%)	Type of diluent polymer	Pentad isotactic index (%)	Mixing amount per 100 parts by mass of masterbatch
Ex. 22	98	120	101200	32	Acrylic acid	20	48	EP copolymer	95	20
Ex. 23	98	120	101200	47	Maleic anhydride	5	48	EP copolymer	95	20
Ex. 24	98	120	101200	42	Maleic anhydride	10	48	EP copolymer	95	20
Ex. 25	98	120	101200	32	Maleic anhydride	20	48	EP copolymer	95	20
Ex. 26	98	120	101200	47	Acrylic acid	5	48	EP copolymer	96	20
Ex. 27	98	120	101200	47	Acrylic acid	5	48	EP copolymer	92	20
Ex. 28	96	120	106500	45	Maleic anhydride	7	48	/	/	
Ex. 29	96	120	106500	42	Maleic anhydride	10	48	/	/	
Ex. 30	96	100	125000	45	Maleic anhydride	7	48	/	/	
Ex. 31	96	60	182000	32	Maleic anhydride	20	48	/	/	
Ex. 32	96	150	95000	32	Maleic anhydride	20	48	/	/	
Ex. 33	98	120	101200	47	Acrylic acid	5	48	PP homopolymer	96	20
Ex. 34	98	100	112000	47	Maleic anhydride	7	48	PP homopolymer	96	20
Ex. 35	94.5	60	178000	50	Acrylic acid	10	40	/	/	
Ex. 36	94.5	80	153000	50	Acrylic acid	10	40	/	/	
Ex. 37	94.5	100	120100	50	Acrylic acid	10	40	/	/	
Ex. 38	94.5	120	111800	50	Acrylic acid	10	40	/	/	
Ex. 39	94.5	150	103200	50	Acrylic acid	10	40	/	/	
Ex. 40	94.5	300	70000	50	Acrylic acid	10	40	/	/	
Ex. 41	94.5	100	65100	50	Acrylic acid	10	40	/	/	
Ex. 42	98	120	107000	50.1	Maleic anhydride	1.9	48	EP copolymer	96	20

FIG. 8

	Weight-average fiber length (mm)	Bending modulus (GPa)	Izod impact value (KJ/m²)
Ex. 1	4.5	5.6	32
Ex. 2	4.4	5.3	30
Ex. 3	4.1	4.9	31
Ex. 4	3.8	4.2	30
Ex. 5	2.9	7.1	18
Ex. 6	3.7	6.2	21
Ex. 7	4.1	5.7	25
Ex. 8	4.3	5.8	28
Ex. 9	5.7	5.7	30
Ex. 10	6.1	5.6	34
Ex. 11	6	4.9	28
Ex. 12	1.4	5.7	11
Ex. 13	2.4	5.1	17
Ex. 14	2.8	5.1	19
Ex. 15	3.1	5	20
Ex. 16	3.5	4.9	25
Ex. 17	4.3	4.8	33
Ex. 18	4.4	4.8	29
Ex. 19	4.3	3.9	15
Ex. 20	4.2	5.1	26
Ex. 21	4.6	5.3	28
Ex. 22	4.5	5.1	27
Ex. 23	4.5	5	25
Ex. 24	4.6	5.4	28
Ex. 25	4.5	5.1	29
Ex. 26	4.7	5.7	30
Ex. 27	3.8	4.7	26
Ex. 28	4.3	7.5	30
Ex. 29	4.5	7.2	28
Ex. 30	4	7.6	27
Ex. 31	2.5	4.9	18
Ex. 32	4	5.7	26
Ex. 33	4.7	5.8	30
Ex. 34	4.5	5.4	28
Ex. 35	2	5.5	20
Ex. 36	2.3	5.4	23
Ex. 37	2.7	5	24
Ex. 38	3.3	4.8	28
Ex. 39	4	4.5	2
Ex. 40	4.4	4.5	27
Ex. 41	4.5	4.8	32
Ex. 42	4.56	5.6	35

FIG. 9A

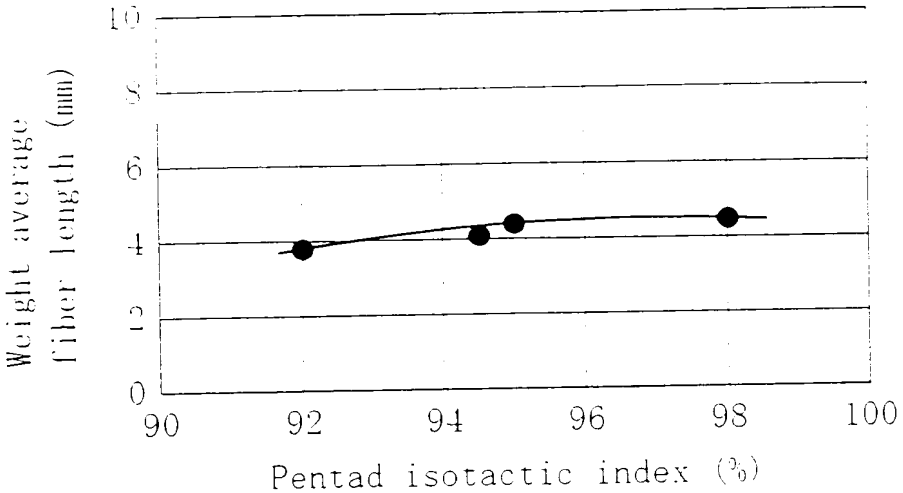


FIG. 9B

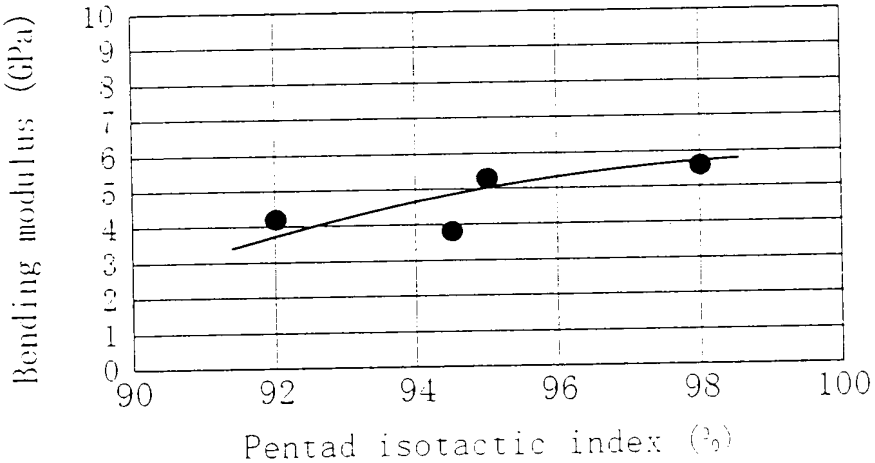


FIG. 9C

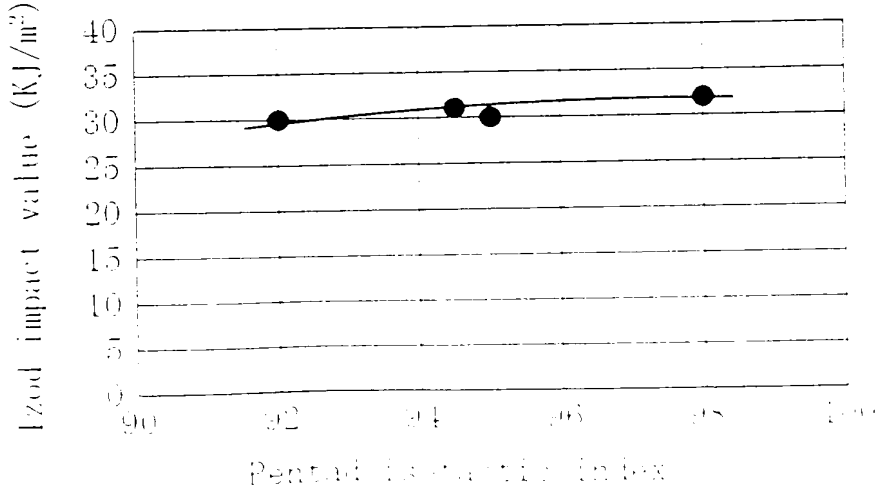


FIG. 10A

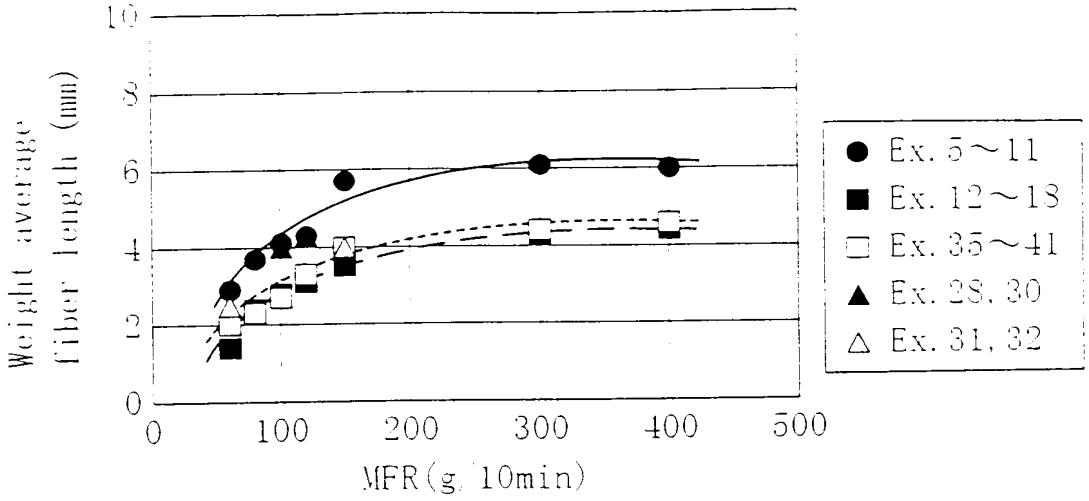


FIG. 10B

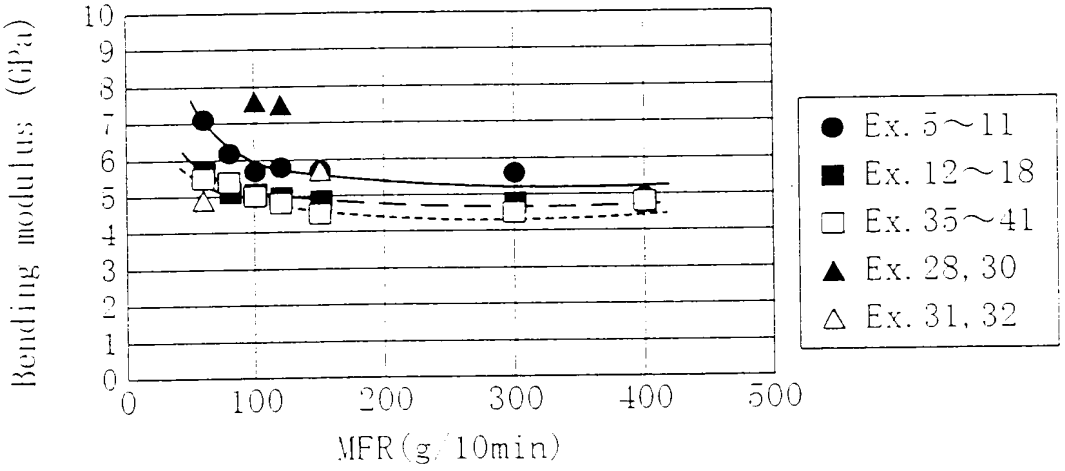


FIG. 10C

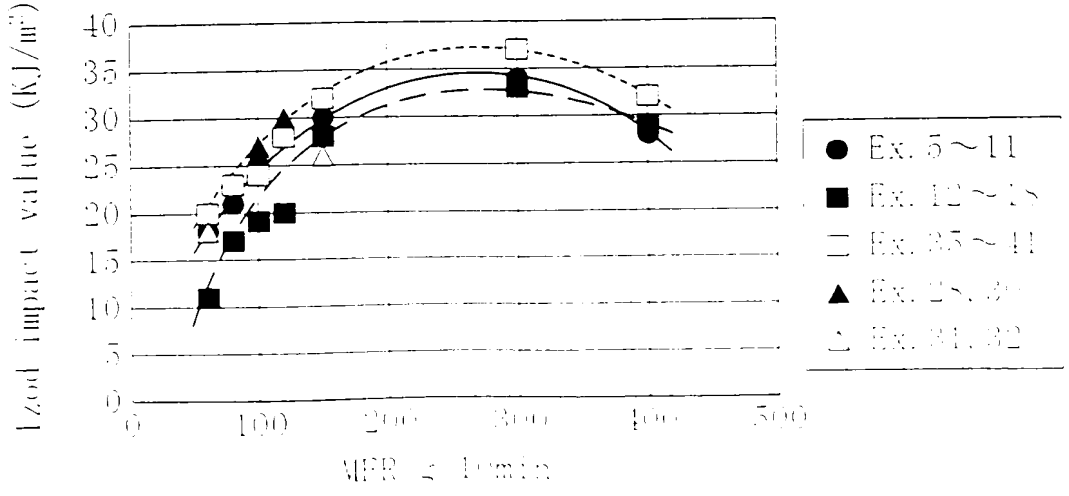


FIG. 11A

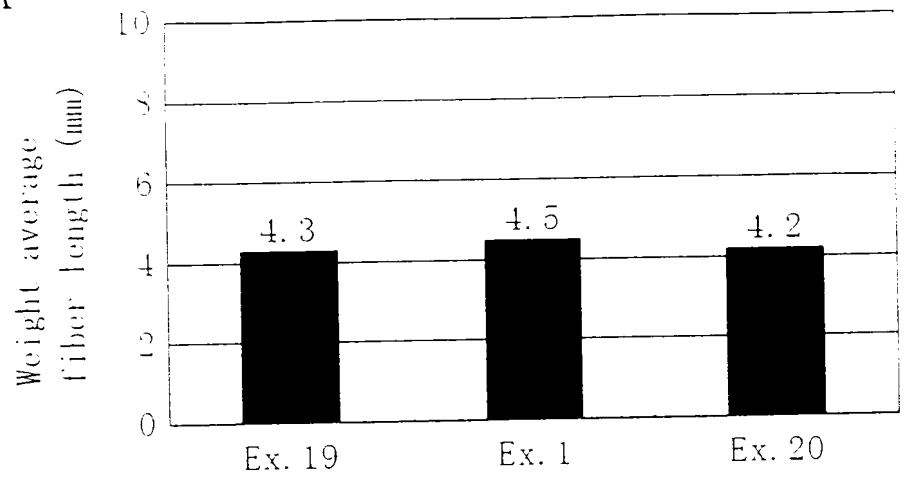


FIG. 11B

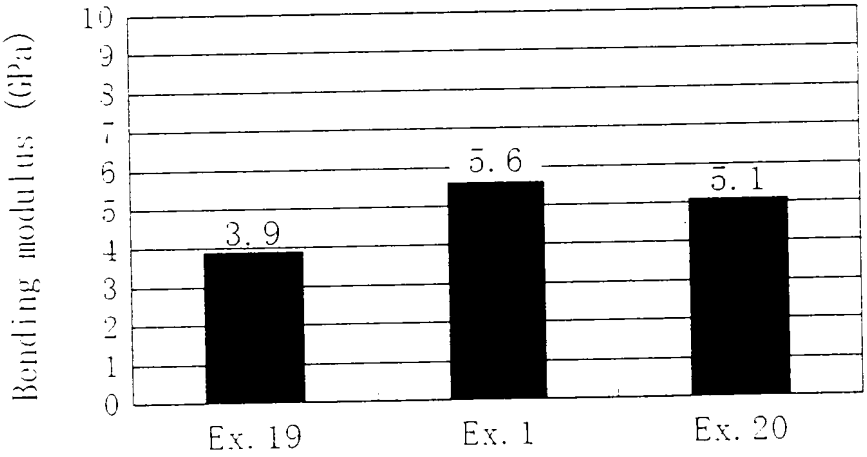


FIG. 11C

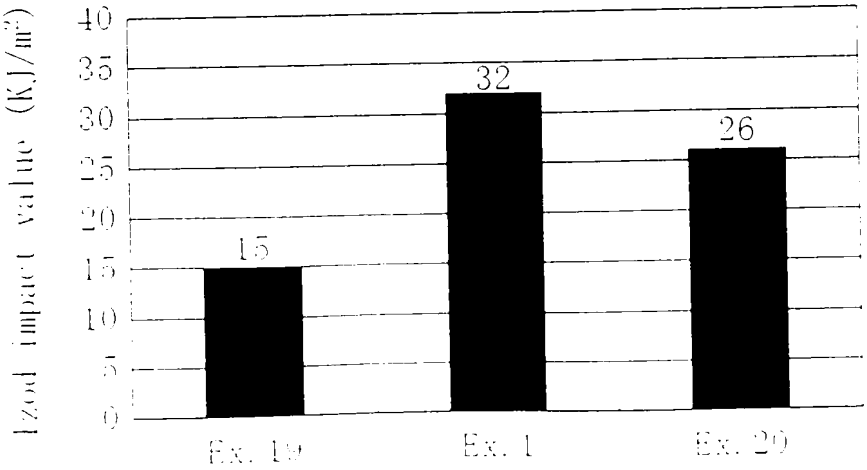


FIG. 12A

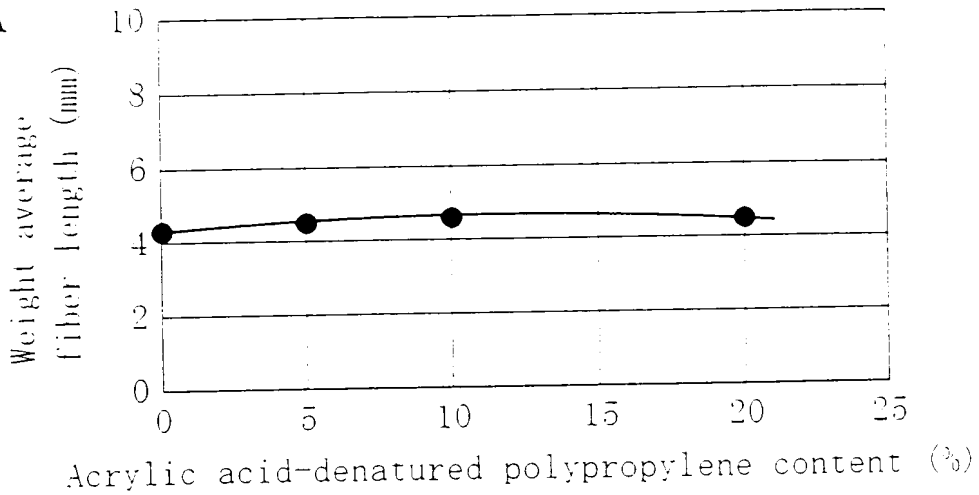


FIG. 12B

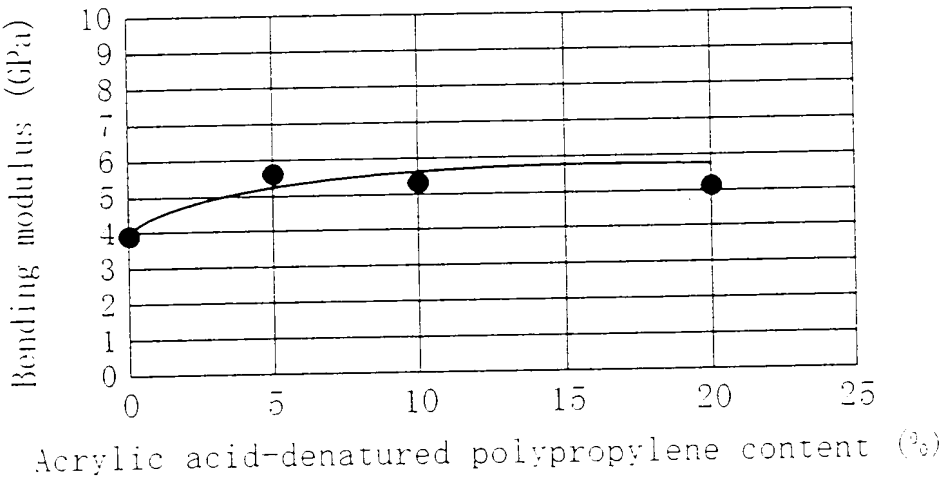


FIG. 12C

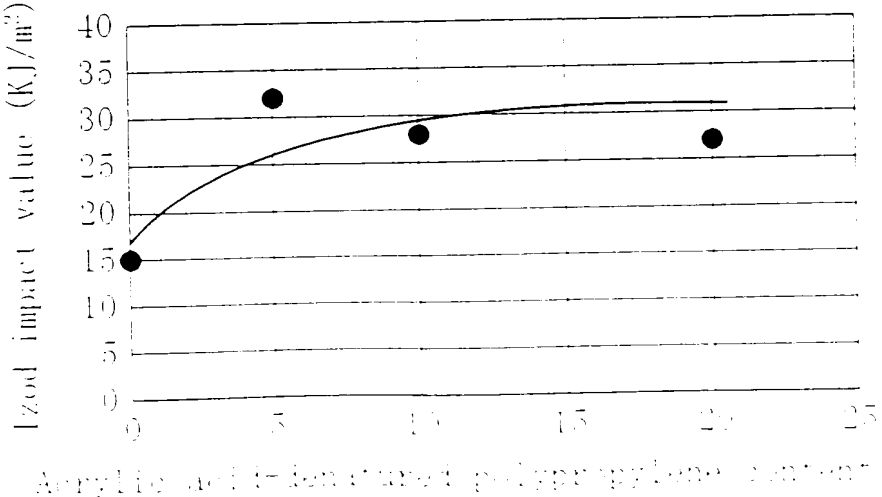


FIG. 13A

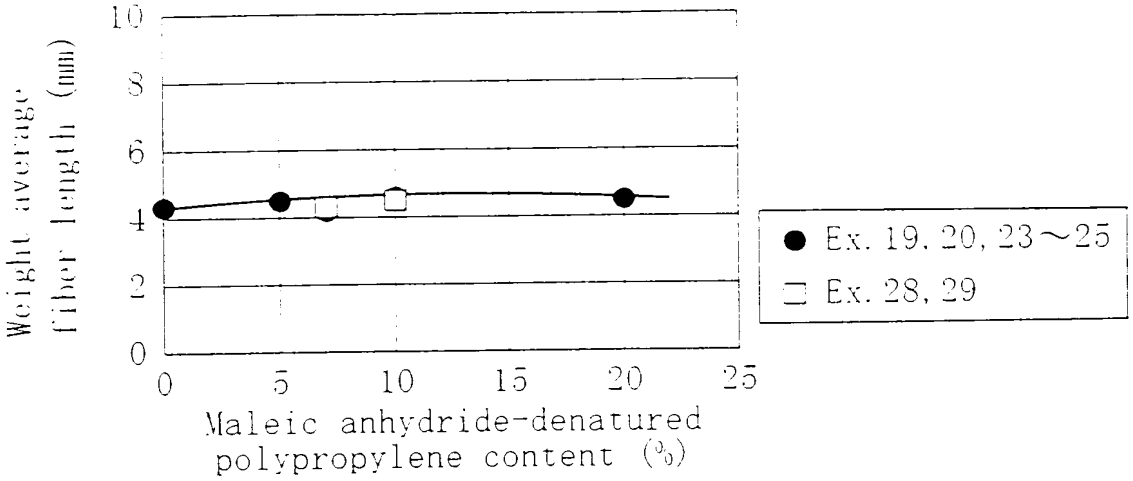


FIG. 13B

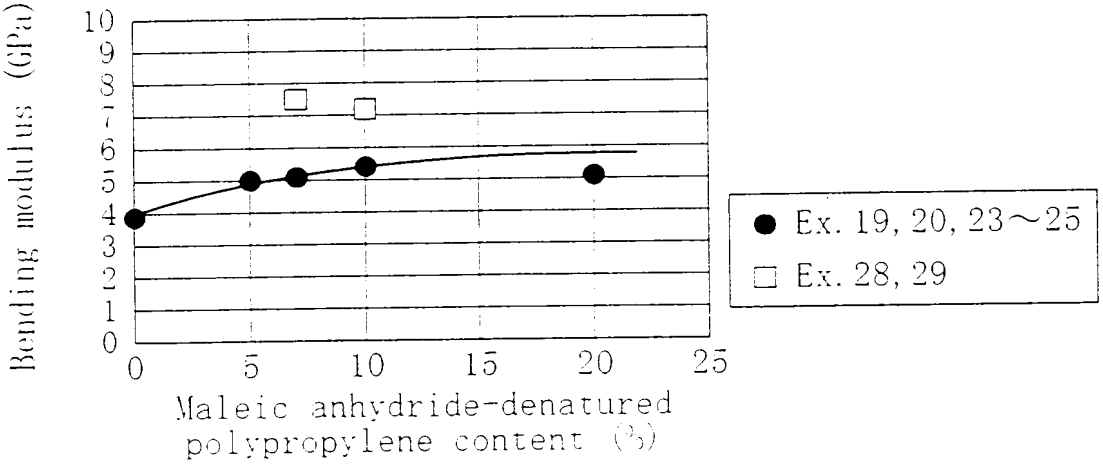


FIG. 13C

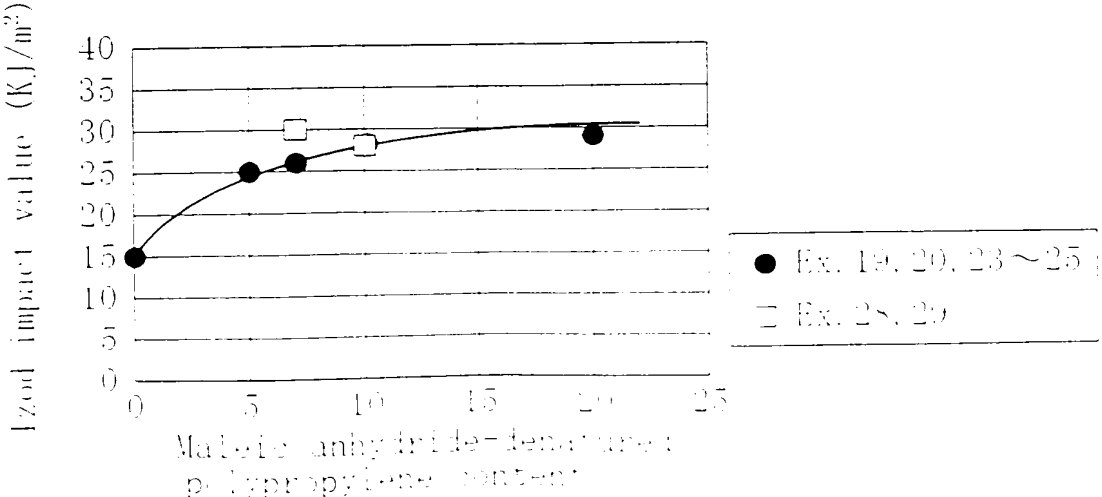


FIG. 14A

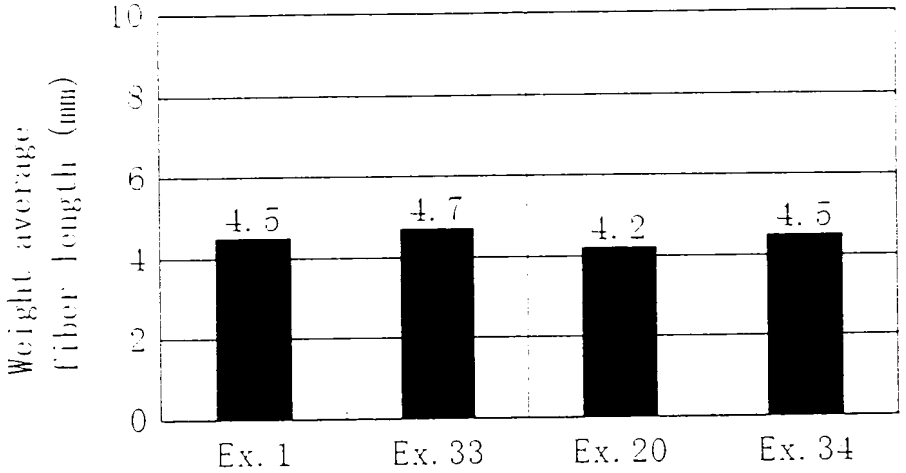


FIG. 14B

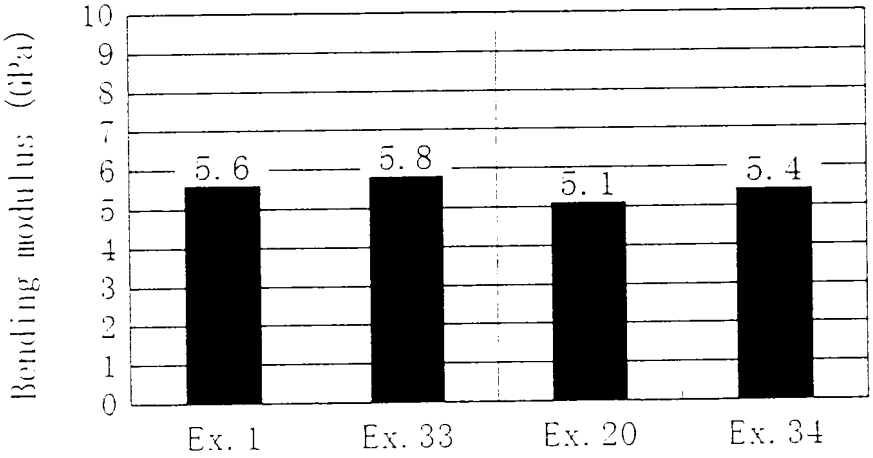


FIG. 14C

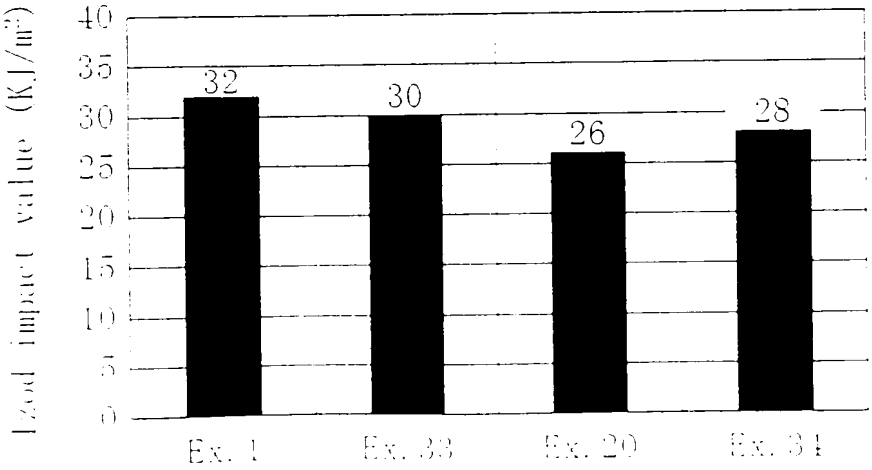


FIG. 15A

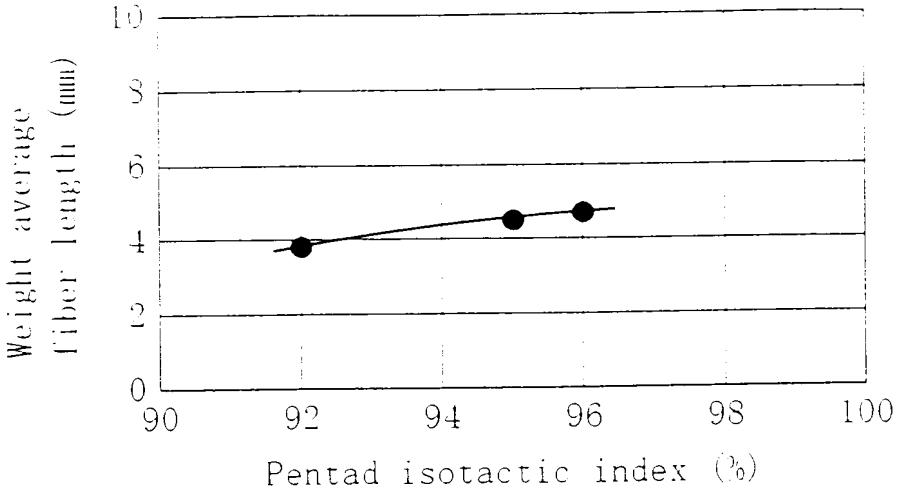


FIG. 15B

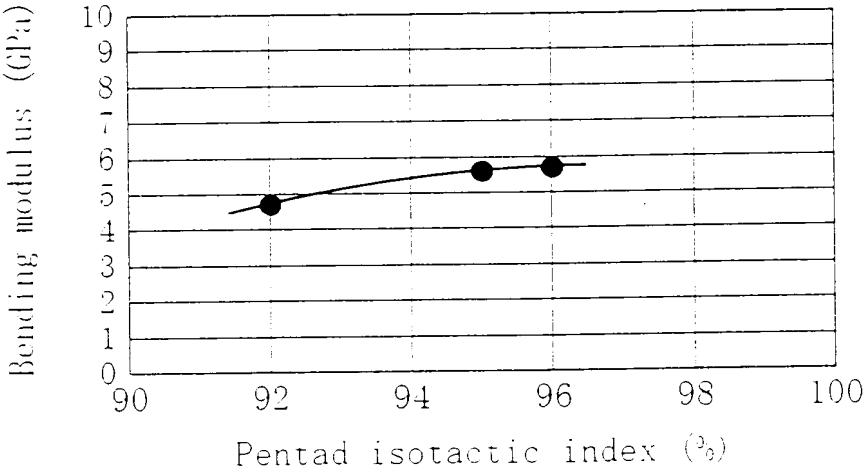


FIG. 15C

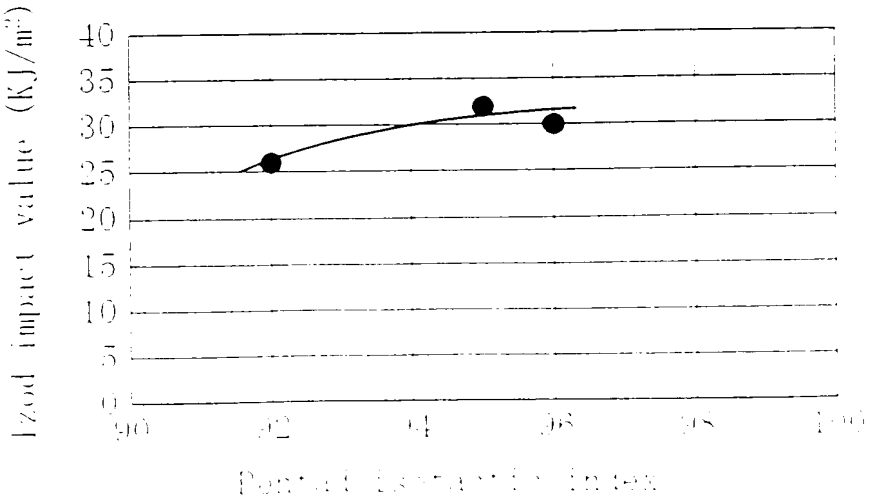


FIG. 16A

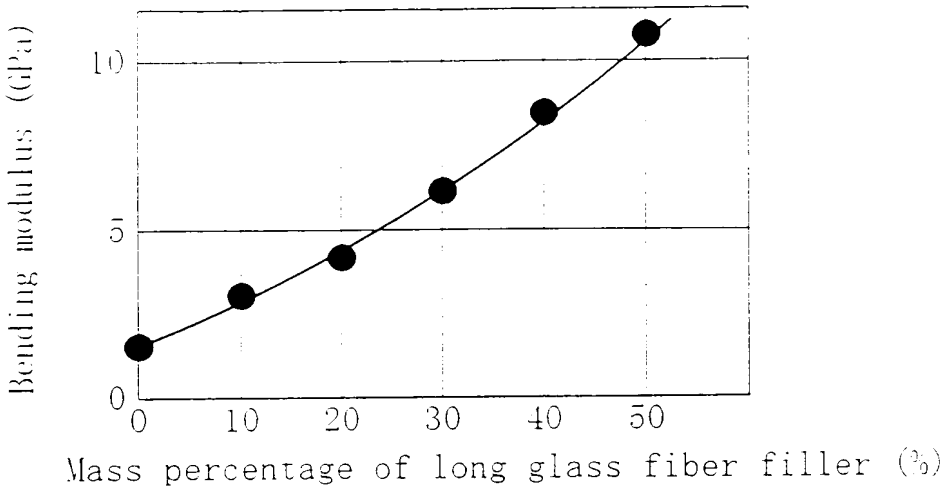


FIG. 16B

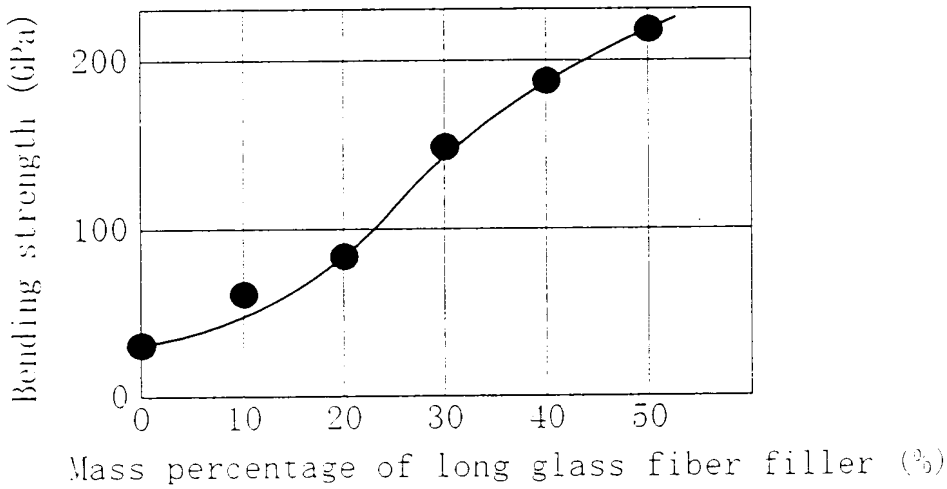


FIG. 16C

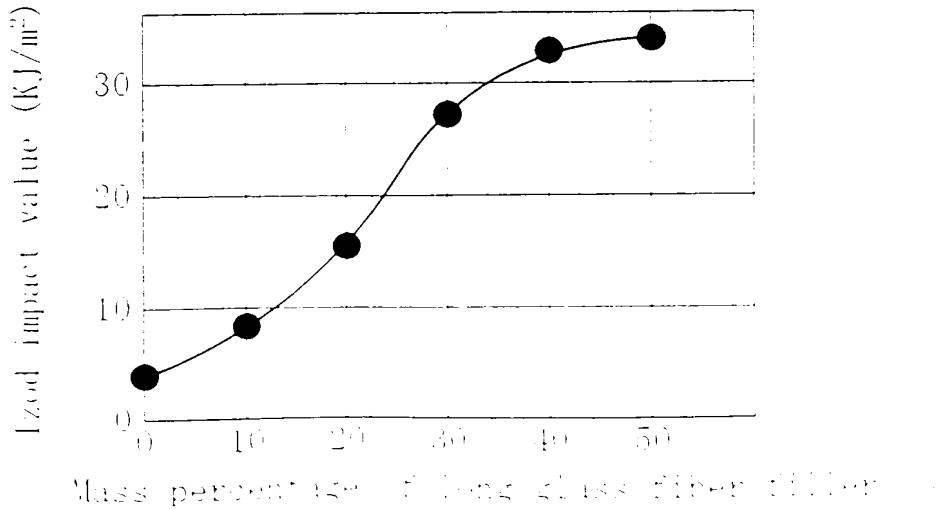


FIG. 17

	Test specimen type	Screw rotation speed (rpm)	Back pressure (Pa)	Injection filling time (sec.)	Injection rate (%)	Injection pressure (MPa)	Percentage of dwelling pressure to injection pressure (%)	Dwelling time (sec.)	Cooling time (sec.)
Comprising polypropylene	Plate like	45	2.94~3.92	5	70~90	2.06~2.16	25~20	10	50
	Dumbbell like	45	2.94~3.92	2.4	70~90	2.84~3.24	45~40	9.5	50
Comprising polyamide	Plate like	45	2.94~3.92	5	70~90	1.86~1.96	25~20	10	50
	Dumbbell like	45	2.94~3.92	2.3	70~90	2.55~2.84	45~40	9.7	50

FIG. 18

Hopper temperature	Cylinder temperature						Mold temperature
	First zone	Second zone	Third zone	Fourth zone	Fifth zone	Sixth zone	
50~55	190	220	230~240	240~250	240~250	220	50~55

FIG. 19

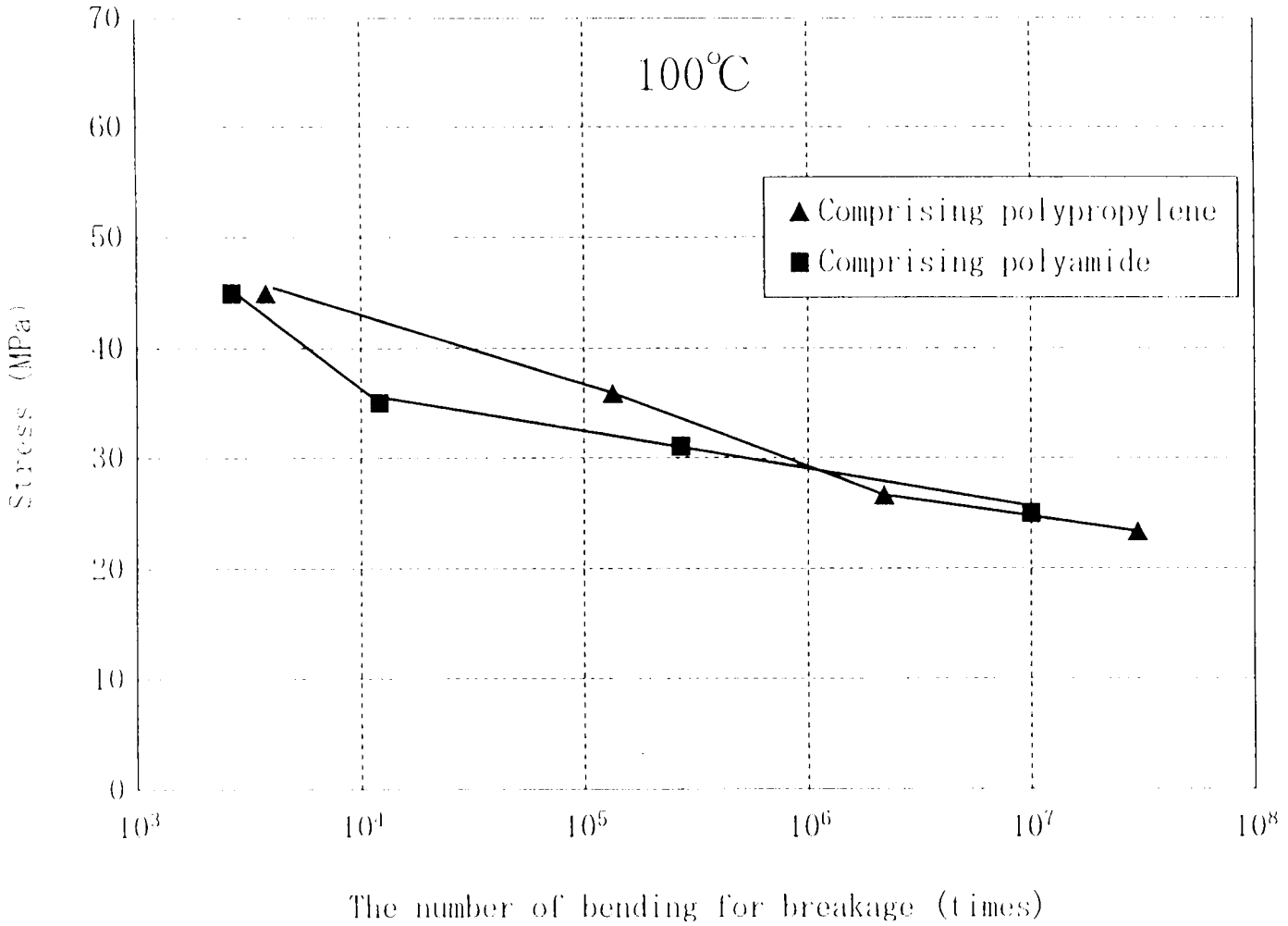

100℃
▲Comprising polypropylene
■Comprising polyamide
Stress (MPa)
70
60
50
40
30
20
10
0
10^3
10^4
10^5
10^6
10^7
10^8
The number of bending for breakage (times)

FIG. 20

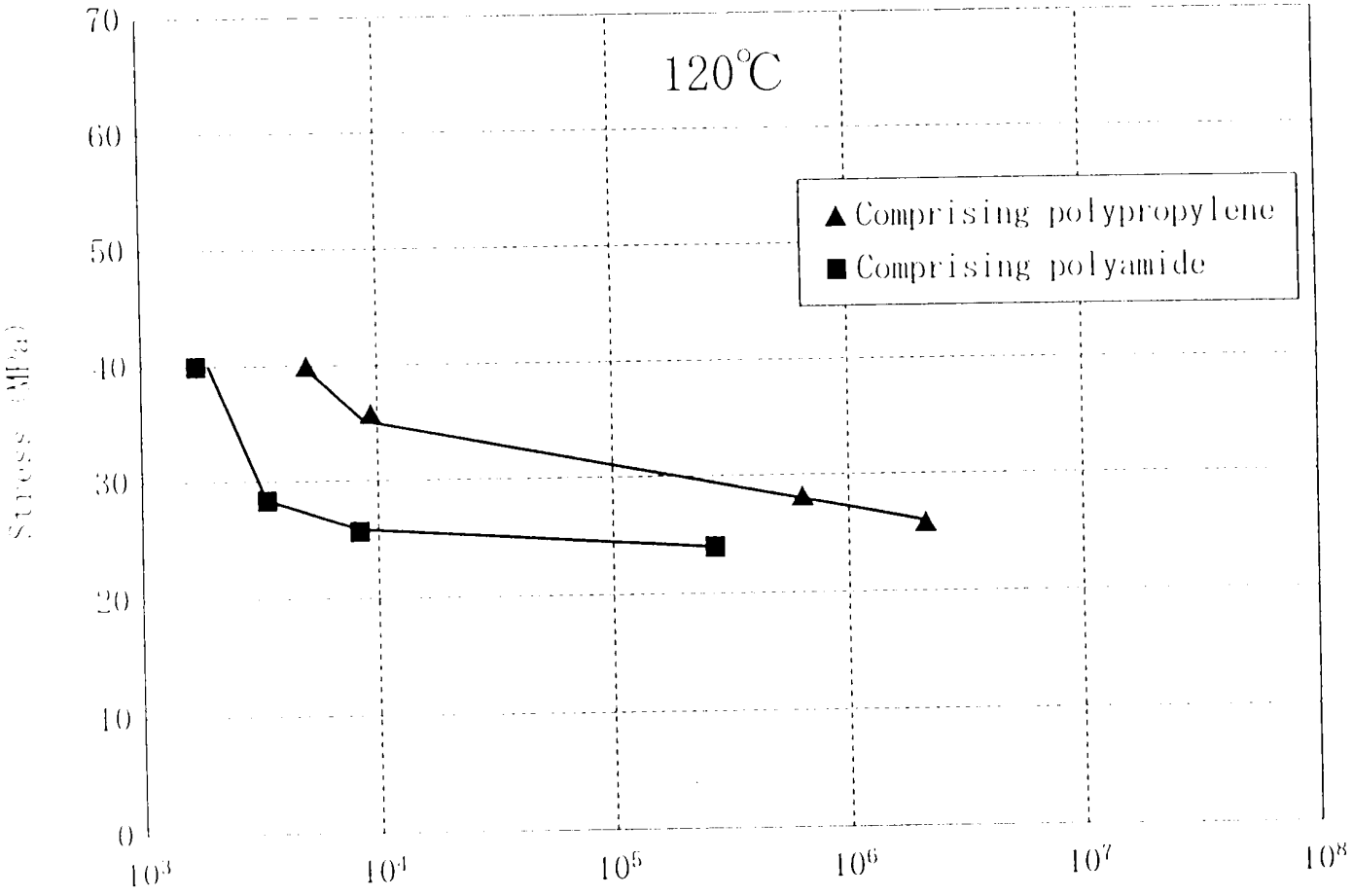

120℃
▲Comprising polypropylene
■Comprising polyamide
Stress (MPa)
70
60
50
40
30
20
10
0
10^3
10^4
10^5
10^6
10^7
10^8
The number of bending for breakage (times)

FIG. 21

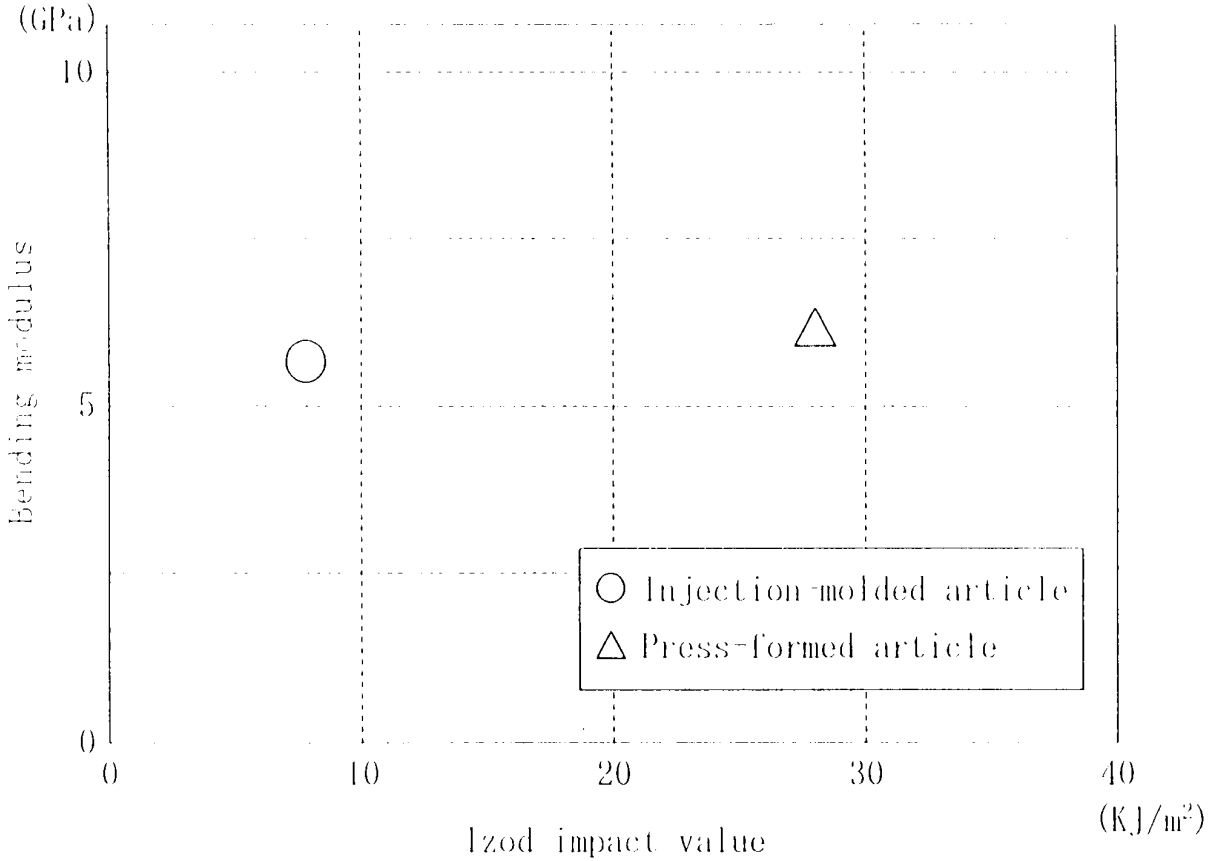

(GPa)
10
5
0
Bending modulus
0
10
20
30
40
(KJ/m²)
Izod impact value
○ Injection-molded article
△ Press-formed article

FIG. 22A

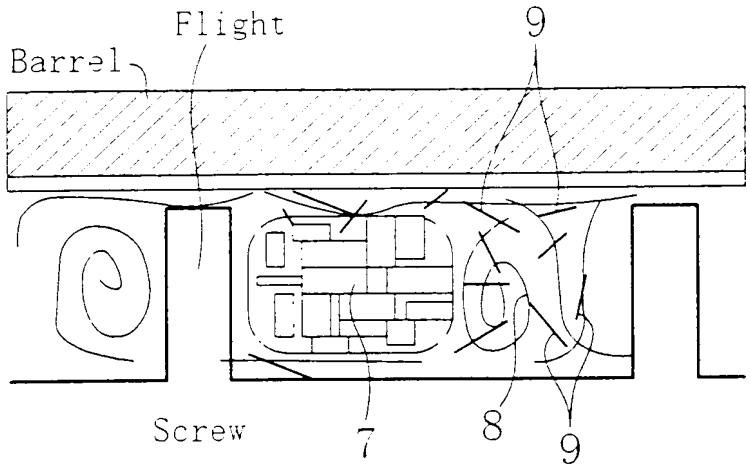


FIG. 22B

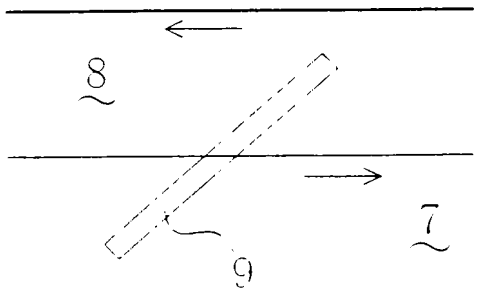
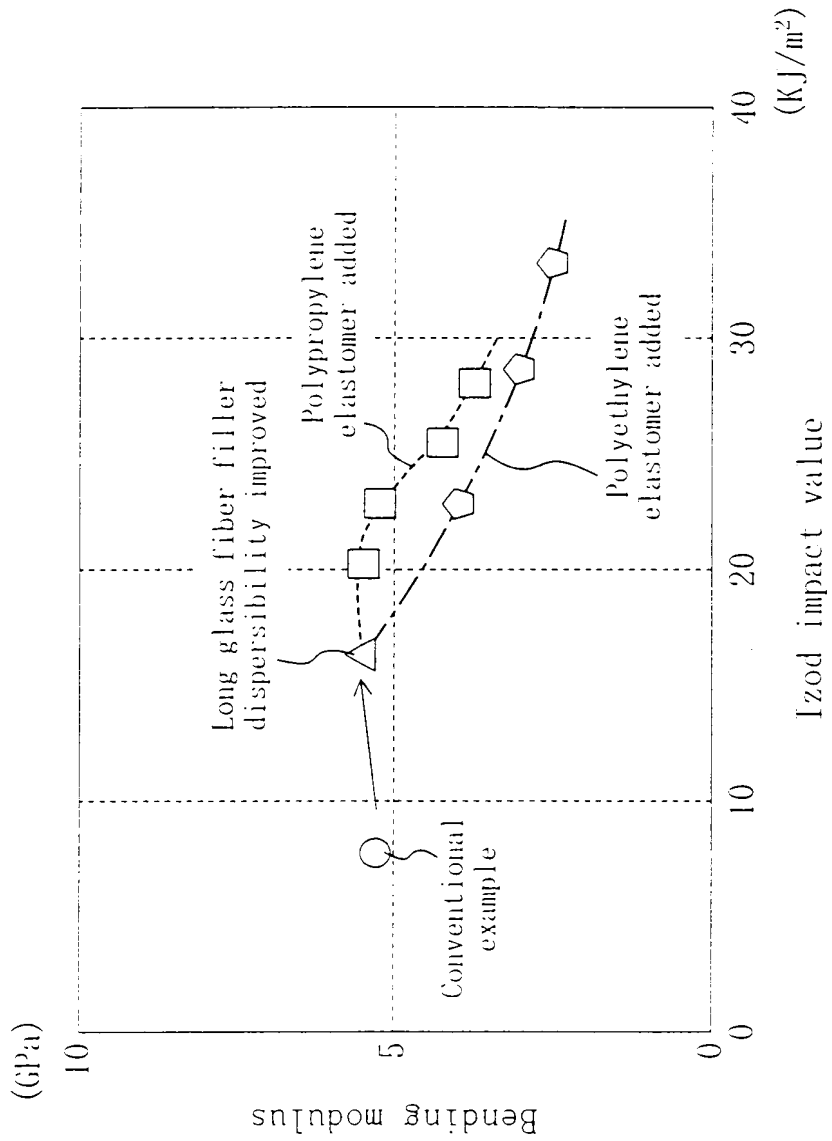


FIG. 23


Bending modulus
(GPa)
10
5
0
0
10
20
30
40
(KJ/m²)
Izod impact value
Long glass fiber filler dispersibility improved
Polypropylene elastomer added
Polyethylene elastomer added
Conventional example